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# Sustainable food choices: main values and goal orientations

Joop de Boer<sup>a</sup>, Carolien T. Hoogland<sup>b</sup> & Jan J. Boersema<sup>b</sup>

- a. Institute for Environmental Studies (IVM), Vrije Universiteit, De Boelelaan 1087, 1081 HV Amsterdam, The Netherlands  
[corresponding author: joop.de.boer@ivm.falw.vu.nl]
- b. Institute for Environmental Studies (IVM), Vrije Universiteit, De Boelelaan 1087, 1081 HV Amsterdam, The Netherlands

## Abstract

This paper aims to improve our understanding of more sustainable food choices – in terms of moral and health aspects of eating. The aim of sustainability may require that people in Western countries choose to eat smaller quantities of meat as well as types of meat that are produced in a more responsible way. Focusing on mediators of the relationship between universalistic values and meat choices, we examined how involvement in food can be separated into promotion-oriented and prevention-oriented motivational goals. In a survey among 1530 Dutch consumers we found that the combination of involvement and goal orientations revealed significant differences between reflection-oriented, taste-oriented, ordinary meal oriented, big meal oriented and non-involved consumers. It appeared that food choices in favour of less meat or free-range meat could be attributed to the priority of universalistic values, a specific attitude (pickiness or animal friendliness respectively), and reflection-oriented food choice motives.

**IVM Working Paper:** IVM 06/06

**Keywords:** Consumer behaviour, sustainability, values, motivational goals, attitudes, meat

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### About IVM

The Institute for Environmental Studies (Instituut voor Milieuvraagstukken, IVM) is the oldest academic environmental research institute in the Netherlands. Since its creation in 1971, IVM has built up considerable experience in dealing with the complexities of environmental problems. Its purpose is to contribute to sustainable development and the rehabilitation and preservation of the environment through academic research and training. The institute has repeatedly been evaluated as the best Dutch research group in this field.

Institute for Environmental Studies  
Vrije Universiteit  
De Boelelaan 1087  
1081 HV AMSTERDAM  
The Netherlands  
Tel. +31 (0)20-5989 555  
Fax. +31 (0)20-5989 553  
Web: <http://www.vu.nl/ivm>



## 1. Introduction

The relationship between conceptually broad values and specific behaviours is mediated by predecisional processes that are often described in terms of involvement and attitudes (e.g. Grunert & Juhl, 1995; Roininen, Lähteenmäki, & Tuorila, 1999). In this paper we examine how involvement in food can be separated into promotion-oriented and prevention-oriented motivational goals (e.g. Higgins, 1997, 1998). This theory-based distinction adds a new dimension to the literature on involvement and improves our understanding of more sustainable food choices – in terms of moral and health aspects of eating. More specifically, food production and consumption will cause less pressure on crucial resources (i.e. energy, water, biodiversity), human health and animal welfare, if people in Western countries choose to eat smaller quantities of meat as well as types of meat that are produced in a more responsible way, such as organic or free-range meat (Aiking, de Boer, & Vereijken, 2006; Smil, 2000). However, in view of people's scepticism about seemingly idealistic issues (Macnaghten, 2003; Peattie, 2001), it is essential to obtain more insight into how the notion of food sustainability can be worked out in terms of values and choices that people find important in their lives. For that aim we develop a set of food choice motives and goal orientations that can mediate the relationship between broad universalistic values and meat choices.

Subscribing to universalistic values, such as "social justice," and "unity with nature" (Schwartz, 1992), is in principle a promising psychological basis for more sustainable consumption. Interestingly, a recently developed version of the Schwartz Value Survey presents universalistic values and their various counterparts as portraits of people instead of abstract descriptions (Schwartz et al., 2001). Although values are specifically defined as criteria that enable people to guide selection and justification of actions, many actions are only indirectly related to values. This applies in particular to food choices, where very strong habits and preferences may create favoured combinations of use situations, meals, products and ingredients. The indirect impacts of values may operate via involvement, attitudes and closely related concepts, including lifestyles and knowledge structures (Brunsø, Scholderer, & Grunert, 2004), motives and criteria (Steptoe & Wardle, 1999), goals and goal-derived categories (Ratneshwar, Barsalou, Pechmann, & Moore, 2001), and regulatory focus (Spiegel, Grant-Pillow, & Higgins, 2004).

There is a high degree of overlap in the way these concepts specify the development of predecisional processes. Generally, the concept of involvement refers to differences between consumers who are highly interested in a certain product category and those who are not (Engel & Blackwell, 1982; Peter & Olson, 2002). High involvement includes what Langer (1989) calls mindful processing of information to make informed choices. In the case of food, even lowly involved consumers have to make choices every day, but they can do this by relying on overlearned ways of information search and well-established attitudes (Bell & Marshall, 2003; Verbeke & Vackier, 2004). Conversely, it should be noted that routine buying does not invariably mean low involvement (Beharrell & Denison, 1995) and that habits can be carried out mindfully (Langer, 1989). According to the literature, researchers may see involvement as a variable that varies in one dimension or more. For example, food involvement can be defined as the level of paying attention to foods during all phases of interaction with them (Bell & Marshall, 2003) and this research strategy can work well for comparative purposes. However, what seems to be of interest to many

researchers is not involvement as a general factor, but the combination of involvement with factors such as product knowledge (Peter & Olson, 2002), health and safety concerns (Verbeke & Vackier, 2004), or feelings of pleasure (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999). A very detailed specification is presented by research into differences in shopping behaviour, meal preparation methods, purchasing motives, quality aspects, and consumption situations (Brunsø et al., 2004; Martins & Pliner, 1998; Steptoe, Pollard, & Wardle, 1995). Such a multifaceted picture of potential differences between consumers may be extremely relevant for market segmentation, but it is not always necessary to improve our understanding of value-behaviour links.

The various notions of predecisional processes may significantly gain from recent work in motivational psychology by Higgins and his co-workers (Higgins, 1997; Higgins et al., 2001). According to Higgins's Regulatory Focus Theory (RFT), all goal directed behaviour is regulated by two distinct motivational systems, termed promotion and prevention, which underlie approach orientation and avoidance orientation, respectively. Both systems have survival functions. The promotion system is basically concerned with obtaining nurturance (e.g. nourishing food); it underlies higher-level concerns with the pleasurable presence of positive outcomes, including accomplishments, aspirations and ideals. In contrast, the prevention system is concerned with obtaining security and avoiding negative outcomes (e.g. dangerous food); it underlies higher-level concerns with safety and fulfilment of responsibilities. An individual's momentary focus on promotion or prevention will depend on his or her personal history and circumstances induced by the situation at hand.

The different functions of promotion and prevention orientation make it important to distinguish at least two types of involvement. This notion is in agreement with several well-known contrasts that have been identified in recent discussions about diet, such as the contrast between indulgence and health, or novelty and familiarity (Warde, 1997). A promotion orientation may fit with culinary motives that emphasize the importance of food as a positive force in life, which appear to be popular in countries as France and Belgium (versus the United States and Japan) (Rozin et al., 1999). In contrast, a prevention orientation may put much weight on those food choice criteria that ensure protection from some personally felt threats to a clear conscience. This orientation may, for example, fit with the notion that the choice of organic products will contribute to the prevention of ills. Of particular interest for our understanding of the value-behaviour relationship is the view that promotion and prevention orientations are more than just intervening structures, because various experiments have shown (Spiegel et al., 2004) that the value of an activity to a person increases when there is a fit between the basic elements of self-regulation (i.e. eagerness and doing extra things fit with a promotion focus; vigilance and being careful fit with a prevention focus).

The implications of these insights for understanding of consumer behaviour have hardly been elaborated yet (Pham & Higgins, 2005). For example, the way in which consumers learn to incorporate new information into their set of choice criteria may depend on the fit between the new information and their promotion or prevention orientation. There are indications (Zhou & Pham, 2004) that consumers learn to associate different products with either promotion or prevention and that they apply the corresponding elements of self-regulation (i.e. eagerness and vigilance) over and over again rather than reconsidering the options on every occasion.

Associations between products and motivational orientations may be extremely relevant in relation to enduring personal values. For instance, universalistic values, such as the belief that people should care for nature, may in principle appeal to the achievement of ideals in case of a promotion focus or the fulfilment of responsibilities in case of a prevention focus. With regard to food products, these processes may give weight to those food choice criteria that take sustainability-related characteristics of products and production processes into account, either as ideals or as responsibilities. Initial evidence of such impacts is provided by some studies showing that the endorsement of universalistic values is related to at least two relevant ways in which people may care about the origins of their foods, namely self-reported frequency of buying organic food (Grunert & Juhl, 1995; Thøgersen & Ölander, 2002) and vegetarianism practised because of the benefits of avoiding meat (Kalof, Dietz, Stern, & Guagnano, 1999). Although Higgins's theory has not been used in previous research into the motives of organic food buyers, several findings suggest that these buyers often show characteristics of a prevention orientation, such as wanting control over all aspects of their lives (Homer & Kahle, 1988), avoiding risks (Schifferstein & Oude Kamphuis, 1998), inclined to reflection (Torjusen, Lieblein, Wandel, & Francis, 2001) and wanting a good conscience (Magnusson, Arvola, Koivisto Hursti, Åberg, & Sjöden, 2003). These findings of previous studies are extremely interesting from a sustainability perspective, but it should be added that far more evidence is required for the mediating role of promotion and prevention motivation.

More evidence is also necessary to support the point that endorsing universalistic values is related to both preferences for organic products and vegetarianism. In view of the relatively small number of strict vegetarians in developed countries—often about 1 to 2% of the general population (e.g. Hoek, Luning, Stafleu, & de Graaf, 2004; Lea & Worsley, 2001; Warde, 1997)—it is more relevant to focus on consumers who use to eat small versus large portions of meat. According to the literature, the amount of meat eating depends on many personal and socio-cultural characteristics, such as sensory appeal (eating small portions of meat may go together with being picky about red meat, skin and bones) (Kubberød, Ueland, Rødbotten, Westad, & Risvik, 2002; Santos & Booth, 1996), age and gender (older persons and women are low on meat), personality traits and patterns of vocational interests (e.g. teachers are low on meat whereas managers are high on meat) (Goldberg & Strycker, 2002), personal values (low in red meat corresponds with greater importance attributed to health, naturalness of the food, weight control and ethical considerations) (Pollard, Steptoe, & Wardle, 1998), and the presence of other people who share the meal (people eat more in the company of others) (de Castro, 1997). The variety of these consumer characteristics makes it interesting to take a more systematic look at the motivational aspects of low or high meat eating.

Accordingly, the first hypothesis of the present study is that consumers can be classified in terms of different levels of involvement in food and that these can be separated into promotion-oriented and prevention-oriented motives. In this way, we may be able to apply Higgins' (1998) motivation theory to the field of food choice behaviour. Our second hypothesis is that consumers who give priority to universalistic values will often make food choices in favour of less meat and in favour of meat from production chains with organic or free-range standards. These relationships with universalistic values should be seen in the context of the ten value constructs that belong to Schwartz's (1992) theory of basic human values. Additionally, the third hypothesis is that the relationships between universalistic values and meat choices are

mediated by prevention-oriented food choice motives. This point is not only important for the psychological aspects of food sustainability but also for our understanding of value-behaviour relationships in general.

## 2. Method

### Subjects and procedure

The very high degree of Internet penetration in the Netherlands enabled us to test the hypotheses in a survey among consumers with Internet access. In 2005 this category included 78% of the households in the population under 75 years of age (CBS, 2005). In June 2005, a call to fill in a questionnaire was mailed to a stratified sample drawn from a large panel of persons who are willing to participate in web-based research for a small fee. The call resulted in 1530 completed questionnaires (response rate 71%). Due to the stratified sampling procedure, the data showed an adequate distribution of the main demographic characteristics, i.e. gender (51% female), age (between 18 and 89), and level of education (25% higher education).

The questionnaire comprised modules with questions about meat choices and attitudes towards meat products, basic values, food choice motives, and some household characteristics. The questions had been developed in two rounds of pilot work, except for the value module derived from Schwartz *et al.* (2001). All questions had standardized answer categories.

### Values

The ten value constructs that are part of Schwartz's (1992) theory of human values can be arranged in a circular structure of underlying complementary and competing motivations, which revolve around two axes: (1) Conservation versus Openness to Change and (2) Self Enhancement versus Self Transcendence. Going anti-clockwise around the circular structure from Conservation to Openness to Change and back the ten value types are Security, Conformity, Tradition, Benevolence, Universalism, Self-direction, Stimulation, Hedonism, Achievement, and Power (see Figure 2.1 below). We used the 40 item Portrait Value Questionnaire (PVQ), in which each portrait consists of two sentences describing a person in terms of a value that is important to him or her (Schwartz *et al.*, 2001). The female version of a Universalism item is: "She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life". Respondents were asked to compare the portrait to themselves and to rate on a 6-point scale 'how much like you' the person is.

Following Schwartz's (2003) recommendations we examined the structure of relations among the value items at various levels of detail. After multidimensional scaling by PROXSCALE (SPSS, 2003), we placed boundaries around the items intended to measure each value to see whether they form a distinct region in the two dimensional space. We confirmed the discrimination of value items into those that serve primarily individual interests (i.e. Self-direction, Stimulation, Hedonism, Achievement and Power items), those that serve primarily collective interests (i.e. Benevolence, Conformity, and Tradition items), and those that serve both (i.e. Universalism and Security items). In addition, we could partition the total space into four distinct regions of value items that represent each of the four higher-order values (i.e. Conservation, Openness to Change, Self Enhancement and Self Transcendence). The next step of the analysis, however, provided no satisfactory partitioning of the total

space into 10 distinct regions of value items to locate each of the ten value constructs. Yet, this does not mean that the items intended to measure a value construct showed a lack of internal consistency. Cronbach's alpha exceeded the level of .70 for 9 of the 10 scales (the 4-item Tradition scale yielded a score of .56). Each scale indicates the relative importance of a value in the set of the individual's value priorities, as the scores were corrected for individual differences in mean response to all 40 items.

In another run of multidimensional scaling we used the 10 scales instead of the 40 items, which resulted in the pattern depicted in Figure 2.1. In this analysis the opposing positions of the four underlined values were fixed. The ordering of the other 6 values in space was largely but not completely in accordance with Schwartz's structural theory. In the spatial arraying of scales presented in Figure 2.1, Hedonism was not located between Stimulation and Achievement and Security not between Power and Tradition. A certain variability is not unusual in the case of Hedonism but the deviation of Security is a relatively recent finding (Schwartz, 2003). There seems to be a hole in the circular structure opposite the region of Universalism, where the border between Security and Power is supposed to be. This may indicate that the Security items currently appeal to broader concerns than in the 1990s. In comparison with the mean ratings of the other value types Security was third, directly after Self-direction and Benevolence, instead of fourth, its more usual position, after Universalism (Schwartz & Bardi, 2001).

### Meat choices and attitudes

Choices in favour of large or small amounts of meat (including poultry, excluding fish) were measured by 3 questions on reported behaviour. The first question asked for a self-categorization in terms of being always high, sometimes high, average, or low on meat, with the additional option of eating no meat at all. The other two questions asked for the number of days per week that meat is part of one's hot meal and the number of days per week that one eats a meat-substitute. The alpha measure of internal consistency of the 3 items was .63. Of all respondents 1.6 % said not to eat meat.

The attitude statements were developed in line with previous work on the distinction between two sets of attitudinal associations with meat's animal origin (Hoogland, de Boer, & Boersema, 2005; Kubberød et al., 2002; Santos & Booth, 1996). The first set of associations refers to feelings of ease or unease connected with the animal origin of meat, including particular reminders of an animal such as skin and bones. The second set of attitudinal associations is being willing or unwilling to pay attention to the treatment and the welfare of livestock animals, in particular when one is buying meat. In addition, a reported behaviour question asked whether one usually eats meat (including poultry) from factory farms or free-range meat. The answers to the statements were analysed with a principal components analysis. The results of a solution with two components are presented in Table 2.1. The first dimension differentiated consumers who do like meat and have feelings of ease with meat's animal origin, from those who have feelings of unease and who are picky about meat.

The second dimension differentiated consumers who pay attention to the treatment and the welfare of livestock animals, from those who do not seem to care about the origin of their meat. Accordingly, we decided to use two attitude scales, one that is especially connected with pickiness (the first 6 items of Table 2.1,  $\alpha = .70$ ) and the other expressing an animal friendly attitude (the next 5 items of Table 2.1,  $\alpha = .51$ ).



Notably, the 1.6% non-meat eaters did not answer these attitude items and the question on reported animal friendly behaviour.

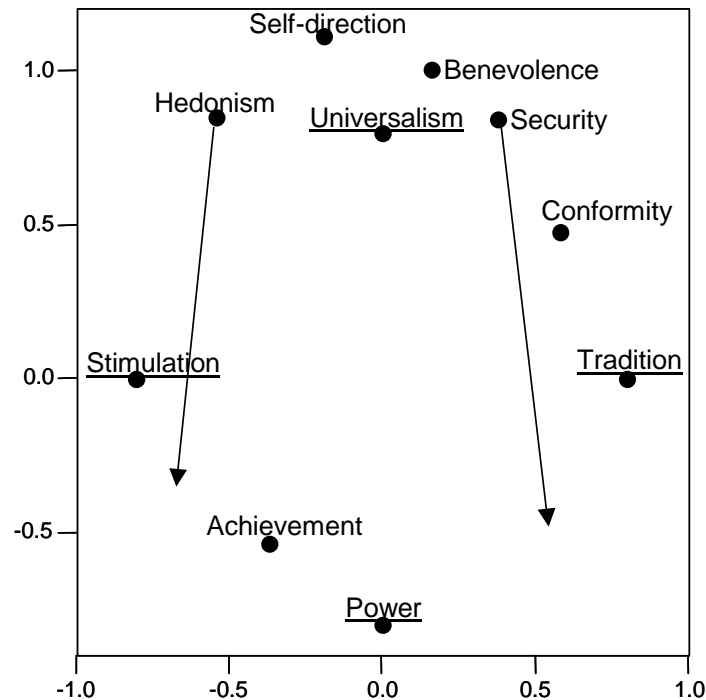


Figure 2.1 Positions of the value scales in the multidimensional space (the positions of the four underlined values were fixed in the analysis; the arrows indicate deviations from theoretical positions).

### Food choice motives

The items on food choice motives were written in terms of short portraits, like the PVQ. In several rounds of pilot work we tried to formulate positively worded portraits of persons who show different degrees of involvement in food, both in promotion-oriented and prevention-oriented ways. Main themes are the issues of taste, health, indulgence, convenience, naturalness and familiarity. In contrast to the existing instruments mentioned above, we did not want to investigate a large number of specific food-related motives but some broad dimensions. From a promotion perspective, for example, it is not taste as such that matters but being proud of one's taste and being eager to taste something new (Higgins, 1998). Alternatively, from a prevention perspective, the person will focus on sensible choices to avoid bad food and particular associations that could spoil his or her appetite, including unpleasant feelings about the food's origin. The 11 items that we used are shown in Table 2.2.

Based on these items we tested the hypotheses in several steps. Firstly, we conducted a multidimensional scale analysis to check the dimensionality of the items. Secondly, we examined their direction. Because there is no standard procedure to differentiate promotion- and prevention-oriented motives, we calculated correlations between motives and value scales, taking due account of the motivational structure of Schwartz's value theory. Security, Conformity, and Tradition are prevention-oriented; Stimulation, Hedonism, Achievement and Power promotion-oriented. Thirdly, both

value scales and motive scales were correlated with the scales of being high or low on meat and favouring or not favouring free-range meat. Finally, the multivariate relationships between the variables were investigated in a regression analysis.

*Table 2.1 Component loadings of the attitudinal statements on meat (after Varimax Rotation).*

Items	Component	
	1	2
The idea that meat comes from an animal gives me an uneasy feeling. (1= fully agree)	.746	.137
Actually, I prefer a plant-based meat substitute to meat. (1= fully agree)	.675	.206
I can accept that meat comes from an animal. (1= fully agree)	-.655	-.117
Meat with bones or skin, such as chops, does not appeal to me. (1= fully agree)	.603	-.056
I love meat that is rich in fat such as a steak. (1= fully agree)	-.583	.080
I prefer white meat such as chicken to red meat such as beef. (1= fully agree)	.468	.035
Do you ever give thought to the fact that meat comes from an animal? (1=always)	.302	.448
If I buy meat I want to know the country of origin. (1= fully agree)	.091	.581
If I buy meat I want to know whether it has been produced in an animal friendly way. (1= fully agree)	.003	.574
I would love to see the animal from which my meat originates. (1= fully agree)	-.019	.571
If I buy meat I want to know whether it has been produced in a way that is environmentally friendly. (1= fully agree)	.042	.542
Do you usually eat meat (including chicken) from factory farms or free range meat? (1 = free range)	.009	.613

*Table 2.2 Food choice motives (female version in order of popularity).*

Items*)	Mean	SD
She likes to vary her meal. She is curious about new tastes.	4.36	1.25
She prefers an ordinary meal. She is happy with meat and two vegetables.	4.02	1.43
She prefers natural products. She would really like her food fresh from the garden.	3.98	1.34
She is grateful for her meal. In her view everything that is edible deserves respect.	3.96	1.25
She feels proud of her taste. She believes that her food choices are very attractive.	3.78	1.43
She is very mindful of food. She wants to eat sensibly.	3.76	1.34
She enjoys eating well. In her view every meal should be festive.	3.59	1.25
Food does not bother her. She has no special demands on it.	3.44	1.43
She is a big eater. She loves to have plenty of palatable foods.	3.31	1.34
She is easy about cooking. She uses a lot of ready-made products in her meals.	3.00	1.41
She eats because she has to. Meals are not important to her.	2.82	1.32

\*) Scores: 1= not like me at all, 6= very much like me

### 3. Results

#### Promotion and prevention orientations

Our *first* hypothesis stated that consumers can be classified in terms of different levels of involvement in food and that these can be separated into promotion-oriented and prevention-oriented motives. Table 2.2 describes the short portraits that we presented to consumers for their assessment of each portrait's similarity to themselves. The judgments were analysed through multidimensional scaling to identify the dimensions that best account for the data. Figure 3.1 shows the positions of the 11 items in the two-dimensional space. It appears that the horizontal dimension can be interpreted in terms of high versus low involvement in food. High involvement, for example, is expressed by the preference to vary one's meal; low involvement means that meals are not considered important. In addition, the vertical dimension separates the items into, on the one hand, promotion-oriented motives, such as enjoying eating well, and, on the other hand, prevention-oriented motives, such as a preference for natural products.

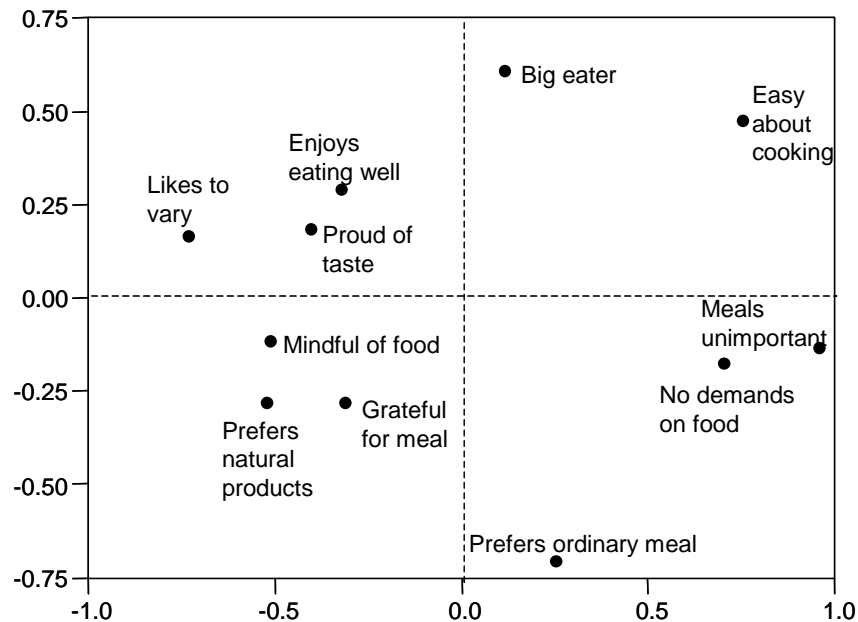


Figure 3.1 Multidimensional scaling of the food choice motives.

Taken together, the four quadrants of Figure 3.1 demonstrate that it is relevant to separate promotion- and prevention-oriented motives among consumers who are highly involved in food and also among those who are less involved. To put it shortly, the highly involved consumers can be split into those who are taste-oriented and those who are reflective about food. Due to their common relationship with involvement, degree of taste-orientation (3 items,  $\alpha = .76$ ) and degree of reflection-orientation (3 items,  $\alpha = .72$ ) are positively correlated scales ( $r = .44, p < .001$ ). Additionally, consumers who are somewhat less involved may be characterized as "big eaters" or "supporters of an ordinary meal". Although the latter characterization is based on single items only, it is an interesting contrast for further analysis. The items that reveal the lowest level of involvement were not included in further analyses, as they did not provide extra information.

We tested the directional differences between the pairs of food choice motives by calculating partial correlations between each motivational orientation and the 10 value scales, controlling for the paired orientation. The rationale for this approach is that the motivational structure of Schwartz's value theory reveals prevention and promotion motives at a general level, irrespective of the person's involvement in food. Therefore, the partial correlations between a person's reflection-orientation and his or her value priorities may reveal how much this orientation is linked to a prevention-specific value, provided that the person's involvement is accounted for by his or her taste-orientation. The same applies vice versa to partial correlations between taste-orientation and value priorities, controlling for reflection-orientation. The first two columns of Table 3.1 present the partial correlations regarding reflection- and taste-oriented motives, respectively. As hypothesized, the correlations show opposite signs (in all cases,  $p < .001$ ). Reflection-orientation is positively correlated with Security and to a lesser degree Conformity and Tradition, but taste-orientation is negatively correlated. On the other hand, taste-orientation is positively correlated with Stimulation, Hedonism, Achievement and Power, but reflection-orientation negatively. In sum, these patterns of correlations are in accordance with the expected differences between promotion and prevention.

Interestingly, the same pattern of partial correlations appeared regarding the two single item motives that characterise ordinary meal oriented and big meal oriented eaters. Those who preferred ordinary meals gave more priority to Security, Conformity, and Tradition than those who preferred big meals. In contrast, those with preferences for big meals gave more priority to Stimulation, Hedonism, Achievement and Power than the ones who preferred ordinary meals (in all cases,  $p < .001$ ). These patterns of correlations are also in accordance with the differences between prevention and promotion.

A special point of attention is the relationship between these measures and Universalism. As noted before, the motives underlying Universalism can be either promotion- or prevention-oriented. Depending on the person and the circumstances, for example, respect for the welfare of others can be seen as an ideal that should be achieved (promotion focus) or as a responsibility that should not be neglected (prevention focus). In the case of food, Universalism appeared to be positively correlated with reflection-orientation only, which emphasizes the latter's association with the fulfilment of moral responsibilities. In summary, then, the *first* hypothesis can be confirmed.

### Meat choices and attitudes

Our *second* hypothesis refers to the relationship between Universalism and food choices in favour of less meat and in favour of meat from production chains with organic or free-range standards. The relevant correlations are presented in Table 3.2. As hypothesized, Universalism was significantly correlated with an animal friendly attitude and with reported animal friendly behaviour in the sense of buying free-range meat. Universalism was also associated with being low on meat (including those who do not eat meat). These results support accepting the *second* hypothesis. The unique position of Universalism is quite clear from the data. The other value priorities are hardly correlated with the four meat-related variables, although the values that oppose Universalism in the circular value structure—Hedonism, Achievement and Power—showed some weak negative associations with being low on meat (in all cases,  $p < .001$ ). Another interesting point is that pickiness about meat was almost unrelated to

the value priorities; pickiness is apparently not an attitude towards meat that is shaped by value-laden experiences.

*Table 3.1 Partial correlations between value priorities and food choice motives scales.*

	First pair of scales		Second pair of scales	
	Reflection oriented <sup>1)</sup>	Taste oriented <sup>2)</sup>	Ordinary meal oriented <sup>3)</sup>	Big meal oriented <sup>4)</sup>
Security	.25***	-.20***	.22***	-.20***
Conformity	.16***	-.22***	.27***	-.14***
Tradition	.18***	-.26***	.32***	-.15***
Benevolence	.09**	-.08**	-.01	-.09**
Universalism	.37***	-.19***	-.07**	-.12***
Self-direction	-.11**	.11***	-.23***	-.04
Stimulation	-.22***	.29***	-.24***	.19***
Hedonism	-.35***	.29***	-.12***	.19***
Achievement	-.25***	.19***	-.11***	.18***
Power	-.26***	.18***	-.12***	.21***

<sup>1)</sup> Controlling for taste-oriented motives.

<sup>2)</sup> Controlling for reflection-oriented motives.

<sup>3)</sup> Controlling for big meal oriented motives.

<sup>4)</sup> Controlling for ordinary meal oriented motives.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### Motives as mediators

Although the presumed impact of Universalism on the meat-related variables may not be strong, it is still relevant to examine the *third* hypothesis, which stated that the relationships between values and meat choices are mediated by prevention-oriented food choice motives. The first step of this analysis requires more insight into the associations between the food choice motives and the meat-related variables. These results are presented in Table 3.3 in the form of partial correlations between the meat-related variables and each food choice motive, controlling for the three other motives.

*Table 3.2 Correlations between value scales and meat-related variables.*

	Animal friendly attitude	Buys free range meat	Pickiness	Low on meat
Security	.01	-.05*	-.01	.05
Conformity	-.09**	-.11***	-.05*	-.03
Tradition	-.11***	-.11***	-.08**	-.02
Benevolence	.01	.06	.02	.07**
Universalism	.25***	.17***	.09**	.21***
Self-direction	.09**	.12***	.02	.10***
Stimulation	.01	.07*	.03	-.02
Hedonism	-.11***	-.05	.0	-.12***
Achievement	-.05*	-.04	.0	-.12***
Power	-.03	-.04	-.02	-.13***

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Reflection-oriented motives were positively correlated with an animal friendly attitude and food choices in favour of less meat as well as in favour of free-range meat. In contrast, preferences for ordinary meals were negatively correlated with an animal friendly attitude and food choices in favour of less meat or in favour of free-range meat. In short, the two types of prevention-oriented food choice motives (reflective-oriented and ordinary meal oriented) had contrasting relationships with the meat-related variables, including pickiness (in all cases,  $p < .001$ ).

*Table 3.3 Partial correlations between the meat-related variables and each food choice motive, controlling for the three other motives.*

	Animal friendly attitude	Buys free range meat	Pickiness	Low on meat
Reflection oriented	.32***	.18***	.14***	.31***
Taste oriented	.01	.01	-.11***	-.19***
Big meal oriented	-.04	.0	-.07**	-.15***
Ordinary meal oriented	-.16***	-.14***	-.21***	-.29***

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

The final step of the analysis examines the multivariate relationships between the variables. Table 3.4 describes the results of four regression analyses in which each of the meat-related variables was regressed on the food choice motives, the value priorities and some personal characteristics (i.e. gender, age, education, income, and frequency of eating in the company of others). The 10 scales regarding the value priorities were condensed for these analyses by combining pairs of adjacent scales (i.e. Conformity and Tradition, Stimulation and Hedonism, Achievement and Power). Moreover, one of the 10 scales (i.e. Benevolence) was left out of the analysis to avoid linear dependencies. The four analyses are summarized in Table 3.4, which gives an overview of the beta weights. The first column reveals that an animal friendly attitude was positively related to pickiness about meat, reflection-oriented food choice motives and Universalism, and negatively to preferences for an ordinary meal. The significant coefficient for Universalism indicates that this value priority may contribute to the development of an animal friendly attitude in ways that are not completely mediated by food choice motives.

The second column of Table 3.4 refers to reported animal friendly behaviour in the form of buying free-range meat. This behaviour was positively related to an animal friendly attitude, reflection-oriented food choice motives, higher level of education and higher level of income. Universalism did not have a significant coefficient in this regression and its weak relationship with buying free-range meat seems to be mediated by an animal friendly attitude and reflection-oriented food choice motives.

Pickiness about meat is the dependent variable in the third column of Table 3.4. This attitude was positively related to an animal friendly attitude and reflection-oriented food choice motives, negatively to taste-oriented food choice motives, big meal oriented motives and ordinary meal oriented motives. In addition, there were significant coefficients for gender and age, which show that females and young people in general had higher scores on pickiness about meat than men and older people. As noted above, pickiness was not associated with value priorities.

The fourth column of Table 3.4 refers to being low or high on meat. Being low on meat was positively related to pickiness about meat and reflection-oriented food choice motives, negatively to taste-oriented food choice motives, big meal oriented motives and ordinary meal oriented motives. There were also significant coefficients for gender, age and frequency of eating in the company of others. Females and older people in general were more often low on meat; persons who frequently eat in the company of others tended to be higher on meat. Universalism did not have a significant coefficient in this regression and its weak relationship with being low on meat may be mediated by reflection-oriented food choice motives.

*Table 3.4 Regression of the meat-related variables on attitudes, motives, values and personal characteristics (beta weights).*

	Animal friendly	Buys free range	Pickiness	Low on meat
Animal friendly		.27***	.21***	.05
Pickiness	.20***	-.00		.37***
Reflection oriented	.29***	.10**	.11***	.18***
Taste oriented	.05	.00	-.13***	-.12***
Big meal oriented	-.04	.02	-.10***	-.12***
Ordinary oriented	-.08**	-.03	-.14***	-.13***
Security	.02	-.07	.06	-.02
Conformity/ Tradition	-.03	-.11	.02	.01
Universalism	.19***	.01	.05	.01
Self-direction	.07	.00	-.04	.06
Stimulation/ Hedonism	-.01	-.03	.02	.01
Achievement/ Power	.10	-.09	.08	-.03
Gender	-.09	.03	.17***	.06*
Age	.01	.02	-.25***	.15***
Education	.03	.09*	.03	.03
Income	.00	.06*	-.02	.01
Eat meals together	.00	.01	-.03	-.08***
R square	.23	.17	.19	.31

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Overall, these results seem to concur with the hypothesis that the relationships between Universalism and meat choices in favour of less meat and in favour of free-range meat are mediated by prevention-oriented food choice motives. However, our hypothesis about the mediating role of prevention-oriented food choice motives did not take into account that both reflection-oriented food choice motives and preferences for ordinary meals can be seen as prevention-oriented motives. Therefore, our conclusion is that the *third* hypothesis can only be supported with regard to reflection-oriented food choice motives. In addition, it should be emphasized that the role of certain mediating attitudes, such as an animal friendly attitude, should not be underestimated.

## Discussion

This study uncovered several important psychological factors for our understanding of food choices in general and food sustainability in particular. As hypothesized, we may reveal interesting differences between consumers by explicitly examining how involvement in food can be separated into promotion-oriented and prevention-

oriented motives. This distinction adds a new dimension to the literature on involvement and highlights a number of meaningful consumer segments. We also found that endorsing universalistic values is related to choices in favour of less meat and in favour of meat from production chains with organic or free-range standards. And finally, we shed some light on the way in which these value-behaviour relationships are mediated by prevention-oriented motives and an animal friendly attitude.

An additional distinction separated promotion- and prevention-oriented motives both among consumers who are highly involved in food and among those who are less involved. In particular, it became clear that consumers may be reflection-oriented, taste-oriented, ordinary meal oriented, big meal oriented or non-involved. The relevance of this finer distinction can be shown by comparing reflection-oriented motives with preferences for ordinary meals. Both are prevention-oriented motives, correlated with the value types Security, Conformity and Tradition. However, the two variables had contrasting relationships with Universalism and the meat choices. Reflection-oriented consumers gave more priority to Universalism and showed a higher level of involvement in food. They also made more often food choices in favour of less meat and in favour of free-range meat. In contrast, the ordinary meal oriented consumers showed a combination of low involvement in food and a habitual preference for meat. Preferences for an ordinary meal were strongest among consumers with lower education ( $r = -.30$ ) and income ( $r = -.15$ , in both cases,  $p < .001$ ) and may be typical for traditional worker milieus.

The differences between the various motives were quite robust. Multivariate scale analyses among males and females separately produced almost similar results. The main difference with the overall pattern (e.g. Figure 3.1) was a smaller distance between the taste-oriented motives and the preference for big meals among males than among females. Correlations with gender and age indicate that females ( $r = .14$ ) and older people ( $r = .26$ ) were more reflection-oriented than males and young people. The latter showed more often a preference for big meals (gender  $r = -.19$ , age  $r = -.23$ ). Further research should expand the number of items of the set to transform the single item scales into more reliable multi item measures. Adding items may also create a more refined segmentation, although it is our opinion that the main types of motives have been included.

The correlations with measures of reported behaviour were generally low. However, they showed consistent patterns that were in agreement with the literature. Being high on meat was not only associated with a particular attitude and motivational orientations but also with gender, age and frequency of eating with others. The importance of pickiness about meat has also been found in other developed countries, especially among women and young people in general (Kubberød et al., 2002; Santos & Booth, 1996). The relatively strong associations with age ( $r = -.26$  among females,  $r = -.12$  among males, in both cases,  $p < .001$ ) suggest that a generation is growing up with quite different attitudes towards meat than their parents. From the perspective of sustainable development, therefore, it is crucial to assess how this will affect the environmental pressure of food consumption and production in the near future.



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